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EXAMINER	
PHAN, HANH	
ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 06/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/776,438	SNAWERDT, PETER	
	Examiner	Art Unit	
	Hanh Phan	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 February 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-10 and 15-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-10,17,18 and 20-24* is/are rejected.

7)☒ Claim(s) *15,16 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on 11/12/2004.

2. In Remarks filed on 04/09/2004 three terminal disclaimers singed by the attorney are filed to remove the obvious-type double patenting rejections. However, there is only one terminal disclaimer of US Patent No. 6,594,055 received. Therefore, the obvious-type double patenting rejections for US Patent No. 6,469,816 and US Patent No. 6,476,952 are still maintained.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-3, 5-9, 17, 18 and 20-24 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 6,469,816 (Snawerdt). Although the conflicting claims are not

identical, they are not patentably distinct from each other because the limitations recited in claims 1-3, 5-9, 17, 18 and 20-24 of the instant application are encompassed by claims 1-20 of US Patent No. 6,469,816 (Snawerdt).

Regarding claims 1 and 17, Snawerdt (US Patent No. 6,469,816) discloses a card for transmitting data over at least one optical fiber, the card comprising:

a transmitter having at least one light source and a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream; and

a receiver having an interferometer for reading received optical signals, the interferometer having a delay loop fiber; and

a securing device for securing the delay loop fiber (see claims 1, 7 and 19 of Snawerdt).

Regarding claims 2 and 20, Snawerdt discloses wherein the at least one light is a laser (see claims 1, 7 and 19 of Snawerdt).

Regarding claims 3 and 21, Snawerdt discloses further including an energy level detector (see claims 5, 20 and 8 of Snawerdt).

Regarding claims 5, 18 and 22-24, Snawerdt discloses wherein the delay loop fiber has a securing device for securing the delay loop fiber to the card (see claims 1 and 7 of Snawerdt).

Regarding claim 6, Snawerdt discloses further including a circuit having a delayed feedback exclusive-or gate (see claim 16 of Snawerdt).

Regarding claim 7, Snawerdt discloses wherein the interferometer includes a splitter and a coupler (see claims 1 and 7 of Snawerdt).

Regarding claim 8, Snawerdt discloses wherein the card includes backplane made from a printed circuit board (see claims 1 and 7 of Snawerdt).

5. Claims 1-3, 5-9, 17, 18 and 20-24 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,476,952 (Snawerdt). Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations recited in claims 1-3, 5-9, 17, 18 and 20-24 of the instant application are encompassed by claims 1-14 of US Patent No. 6,476,952 (Snawerdt).

Regarding claims 1 and 17, Snawerdt (US Patent No. 6,476,952) discloses a card for transmitting data over at least one optical fiber, the card comprising:

a transmitter having at least one light source and a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream; and

a receiver having an interferometer for reading received optical signals, the interferometer having a delay loop fiber; and

a securing device for securing the delay loop fiber (see claims 1-14 of Snawerdt).

Regarding claims 2 and 20, Snawerdt discloses wherein the at least one light is a laser (see claims 1-14 of Snawerdt).

Regarding claims 3 and 21, Snawerdt discloses further including an energy level detector (see claims 1-14 of Snawerdt).

Regarding claims 5, 18 and 22-24, Snawerdt discloses wherein the delay loop fiber has a securing device for securing the delay loop fiber to the card (see claims 1-14 of Snawerdt).

Regarding claim 6, Snawerdt discloses further including a circuit having a delayed feedback exclusive-or gate (see claims 1-14 of Snawerdt).

Regarding claim 7, Snawerdt discloses wherein the interferometer includes a splitter and a coupler (see claims 1-14 of Snawerdt).

Regarding claim 8, Snawerdt discloses wherein the card includes backplane made from a printed circuit board (see claims 1-14 of Snawerdt).

6. Claims 1-3, 6, 17, 20, 21 and 24 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 09/809,936 (Snawerdt). Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations recited in claims 1-3, 5-9, 17, 18 and 20-24 of the instant application are encompassed by claims 1-19 of copending Application No. 09/809,936 (Snawerdt).

Regarding claims 1, 17 and 24, Snawerdt (copending Application No. 09/809,936) discloses a card for transmitting data over at least one optical fiber, the card comprising:

a transmitter having at least one light source and a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream; and

a receiver having an interferometer for reading received optical signals, the interferometer having a delay loop fiber; and

a securing device for securing the delay loop fiber (see claims 1-19 of Snawerdt).

Regarding claims 2 and 20, Snawerdt discloses wherein the at least one light is a laser (see claims 1-19 of Snawerdt).

Regarding claims 3 and 21, Snawerdt discloses further including an energy level detector (see claims 1-19 of Snawerdt).

Regarding claim 6, Snawerdt discloses further including a circuit having a delayed feedback exclusive-or gate (see claims 1-19 of Snawerdt).

Regarding claim 21, Snawerdt discloses further including an energy level detector (see claims 1-19 of Snawerdt).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Drawings

7. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the feature "**a securing device for securing the delay loop fiber**" specified in the claim 1 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1-3 and 5-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

-In claim 1, line 8, the phrase "**a securing device for securing the delay loop fiber**" is not described in the specification.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1, 2, 5, 7-10, 17, 18 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duncan et al (US Patent No. 6,459,517) in view of Hansen et al (US Patent No. 6,271,950).

Regarding claims 1, 5 and 18, referring to Figures 1 and 3, a card for transmitting data over at least one optical fiber, the card comprising:

a transmitter having at least one light source (i.e., light source 34, Fig. 1);

a receiver (i.e., light receiver 32, Fig. 1, col. 2, lines 22-26 and col. 7, lines 12-23).

Duncan differs from claims 1, 5 and 18 in that he fails to teach the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic

data stream, and the receiver having an interferometer for reading received optical signals and the interferometer having a delay loop fiber, and a securing device for securing the delay loop fiber. However, Hansen in US Patent No. 6,271,950 teaches an optical transmitter further having a phase modulator (i.e., phase modulator 106, Fig. 1) for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and a receiver (i.e., optical receiver 104, Fig. 1) having an interferometer (i.e., splitter 115, delay line 110, combiner 116, Fig. 1) for reading received optical signals (col. 2, lines 30-67, col. 3, lines 1-67 and col. 4, lines 1-57). Although Hansen does not specifically teach a securing device for securing the delay loop fiber to the card. However, it would have been obvious to obtain a securing device in order to secure the delay loop fiber. Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and the receiver having an interferometer for reading received optical signals as taught by Hansen in the system of Duncan. One of ordinary skill in the art would have been motivated to do this since Hansen suggests in column 2, lines 30-67, col. 3, lines 1-67 and col. 4, lines 1-57 that using such the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and the receiver having an interferometer for reading received optical signals have advantage of allowing providing time division

multiplexing, channel routing and channel add/ replace functions and providing a flexible way of allocating bandwidth among multiple users.

Regarding claims 2 and 20, the combination of Duncan and Hansen further teaches discloses the light is a laser (Fig. 1 of Hansen).

Regarding claim 7, the combination of Duncan and Hansen teaches the interferometer includes a splitter and a coupler (Fig. 1 of Hansen).

Regarding claim 8, the combination of Duncan and Hansen teaches the card includes backplane made from a printed circuit board (Fig. 1 of Duncan).

Regarding claims 9, 17, 23 and 24, referring to Figures 1 and 3, a card for transmitting data over at least one optical fiber, the card comprising:

a transmitter having at least one light source (i.e., light source 34, Fig. 1);

a receiver (i.e., light receiver 32, Fig. 1); and

a faceplate (i.e., faceplate 46, Fig. 1) having a fiber tap signal device for indicating a fiber tap (col. 2, lines 22-26 and col. 7, lines 12-23).

Duncan differs from claims 9, 17, 23 and 24 in that he fails to teach the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and the receiver having an interferometer for reading received optical signals. However, Hansen in US Patent No. 6,271,950 teaches an optical transmitter further having a phase modulator (i.e., phase modulator 106, Fig. 1) for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and a receiver (i.e., optical

receiver 104, Fig. 1) having an interferometer (i.e., splitter 115, delay line 110, combiner 116, Fig. 1) for reading received optical signals (col. 2, lines 30-67, col. 3, lines 1-67 and col. 4, lines 1-57). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and the receiver having an interferometer for reading received optical signals as taught by Hansen in the system of Duncan. One of ordinary skill in the art would have been motivated to do this since Hansen suggests in column 2, lines 30-67, col. 3, lines 1-67 and col. 4, lines 1-57 that using such the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and the receiver having an interferometer for reading received optical signals have advantage of allowing providing time division multiplexing, channel routing and channel add/ replace functions and providing a flexible way of allocating bandwidth among multiple users.

Regarding claim 10, the combination of Duncan and Hansen teaches the card is a replacement part for an existing optical multiplexer (Fig. 1 of Duncan).

Regarding claim 22, the combination of Duncan and Hansen further teaches the interferometer includes a delay loop fiber (Fig. 1 of Hansen).

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duncan et al (US Patent No. 6,459,517) in view of Hansen et al (US Patent No. 6,271,950) and

further in view of Ono et al (US Patent No. 6,097,525).

Regarding claim 6, Duncan as modified by Hansen teaches all the aspects of the claimed invention set forth in the rejection to claim 1 above except fails to teach a circuit having a delayed feedback exclusive-or gate. However, Ono in US Patent No. 6,097,525 teaches a circuit having a delayed feedback exclusive-or gate (col. 1, lines 65-67 and col. 2, lines 1-27). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the circuit having a delayed feedback exclusive-or gate as taught by Ono in the system of Duncan modified by Hansen. One of ordinary skill in the art would have been motivated to do this since Ono suggests in column col. 1, lines 65-67 and col. 2, lines 1-27 that using such a circuit having a delayed feedback exclusive-or gate has advantage of allowing narrowing the modulated light spectrum of the system.

13. Claims 3 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duncan et al (US Patent No. 6,459,517) in view of Hansen et al (US Patent No. 6,271,950) and further in view of Siegel (US Patent No. 4,998,295).

Regarding claims 3 and 21, Duncan as modified by Hansen teaches all the aspects of the claimed invention set forth in the rejection to claims 1 and 17 above except fails to teach an energy level detector. However, Siegel teaches an energy level detector (16)(Fig. 1, col. 1, lines 45-67 and col. 2, lines 1-60). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the energy level detector as taught by Siegel in the system of Duncan

modified by Hansen. One of ordinary skill in the art would have been motivated to do this since Siegel suggests in column col. 1, lines 45-67 and col. 2, lines 1-60 that using such an energy level detector has advantage of allowing detecting and monitoring the signal.

14. Claims 1, 2, 5, 7-10, 17, 18 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duncan et al (US Patent No. 6,459,517) in view of Hakki et al (US Patent No. 6,549,311).

Regarding claims 1, 5 and 18, referring to Figures 1 and 3, a card for transmitting data over at least one optical fiber, the card comprising:

a transmitter having at least one light source (i.e., light source 34, Fig. 1);

a receiver (i.e., light receiver 32, Fig. 1, col. 2, lines 22-26 and col. 7, lines 12-23).

Duncan differs from claims 1, 5 and 18 in that he fails to teach the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and the receiver having an interferometer for reading received optical signals and the interferometer having a delay loop fiber, and a securing device for securing the delay loop fiber. However, Hakki in US Patent No. 6,549,311 teaches an optical transmitter further having a phase modulator (i.e., phase modulator 145a, Fig. 1) for phase modulating light from the source (i.e., laser 135a, Fig. 1) so as to create phase-modulated optical signals in the light as a function of an input electronic data

stream, and a receiver (i.e., optical receiver 155a, Fig. 1) having an interferometer (i.e., interferometer 150a, Fig. 1) for reading received optical signals (col. 2, lines 45-67 and col. 3, lines 1-36). Although Hakki does not specifically teach a securing device for securing the delay loop fiber to the card. However, it would have been obvious to obtain a securing device in order to secure the delay loop fiber. Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and the receiver having an interferometer for reading received optical signals as taught by Hakki in the system of Duncan. One of ordinary skill in the art would have been motivated to do this since Hakki suggests in column 2, lines 45-67, col. 3, lines 1-36 that using such the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and the receiver having an interferometer for reading received optical signals have advantage of allowing providing time division multiplexing, channel routing and channel add/ replace functions and providing a flexible way of allocating bandwidth among multiple users.

Regarding claims 2 and 20, the combination of Duncan and Hakki further teaches discloses the light is a laser (Fig. 1 of Hakki).

Regarding claim 7, the combination of Duncan and Hakki teaches the interferometer includes a splitter and a coupler (Fig. 1 of Hakki).

Regarding claim 8, the combination of Duncan and Hakki teaches the card includes backplane made from a printed circuit board (Fig. 1 of Duncan).

Regarding claims 9, 17, 23 and 24, referring to Figures 1 and 3, a card for transmitting data over at least one optical fiber, the card comprising:

a transmitter having at least one light source (i.e., light source 34, Fig. 1);

a receiver (i.e., light receiver 32, Fig. 1); and

a faceplate (i.e., faceplate 46, Fig. 1) having a fiber tap signal device for indicating a fiber tap (col. 2, lines 22-26 and col. 7, lines 12-23).

Duncan differs from claims 9, 17, 23 and 24 in that he fails to teach the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and the receiver having an interferometer for reading received optical signals. However, Hakki in US Patent No. 6,549,311 teaches an optical transmitter further having a phase modulator (i.e., phase modulator 145a, Fig. 1) for phase modulating light from the source (i.e., laser 135a, Fig. 1) so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and a receiver (i.e., optical receiver 155a, Fig. 1) having an interferometer (i.e., interferometer 150a, Fig. 1) for reading received optical signals (col. 2, lines 30-67, col. 3, lines 1-67 and col. 4, lines 1-57). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic

data stream, and the receiver having an interferometer for reading received optical signals as taught by Hakki in the system of Duncan. One of ordinary skill in the art would have been motivated to do this since Hakki suggests in column 2, lines 45-67, col. 3, lines 1-36 that using such the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and the receiver having an interferometer for reading received optical signals have advantage of allowing providing time division multiplexing, channel routing and channel add/ replace functions and providing a flexible way of allocating bandwidth among multiple users.

Regarding claim 10, the combination of Duncan and Hakki teaches the card is a replacement part for an existing optical multiplexer (Fig. 1 of Duncan).

Regarding claim 22, the combination of Duncan and Hakki further teaches the interferometer includes a delay loop fiber (Fig. 1 of Hakki).

15. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duncan et al (US Patent No. 6,459,517) in view of Hakki et al (US Patent No. 6,549,311) and further in view of Ono et al (US Patent No. 6,097,525).

Regarding claim 6, Duncan as modified by Hakki teaches all the aspects of the claimed invention set forth in the rejection to claim 1 above except fails to teach a circuit having a delayed feedback exclusive-or gate. However, Ono in US Patent No. 6,097,525 teaches a circuit having a delayed feedback exclusive-or gate (col. 1, lines 65-67 and col. 2, lines 1-27). Therefore, it would have been obvious to one having skill

in the art at the time the invention was made to incorporate the circuit having a delayed feedback exclusive-or gate as taught by Ono in the system of Duncan modified by Hakki. One of ordinary skill in the art would have been motivated to do this since Ono suggests in column col. 1, lines 65-67 and col. 2, lines 1-27 that using such a circuit having a delayed feedback exclusive-or gate has advantage of allowing narrowing the modulated light spectrum of the system.

16. Claims 3 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duncan et al (US Patent No. 6,459,517) in view of Hakki et al (US Patent No. 6,549,311) and further in view of Siegel (US Patent No. 4,998,295).

Regarding claims 3 and 21, Duncan as modified by Hakki teaches all the aspects of the claimed invention set forth in the rejection to claims 1 and 17 above except fails to teach an energy level detector. However, Siegel teaches an energy level detector (16)(Fig. 1, col. 1, lines 45-67 and col. 2, lines 1-60). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the energy level detector as taught by Siegel in the system of Duncan modified by Hakki. One of ordinary skill in the art would have been motivated to do this since Siegel suggests in column col. 1, lines 45-67 and col. 2, lines 1-60 that using such an energy level detector has advantage of allowing detecting and monitoring the signal.

17. Claims 1, 2, 5, 7-10, 17, 18 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duncan et al (US Patent No. 6,459,517) in view of Fuse et al (US Patent No. 6,335,814).

Regarding claims 1, 5 and 18, referring to Figures 1 and 3, a card for transmitting data over at least one optical fiber, the card comprising:

a transmitter having at least one light source (i.e., light source 34, Fig. 1);

a receiver (i.e., light receiver 32, Fig. 1, col. 2, lines 22-26 and col. 7, lines 12-23).

Duncan differs from claims 1, 5 and 18 in that he fails to teach the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and the receiver having an interferometer for reading received optical signals and the interferometer having a delay loop fiber, and a securing device for securing the delay loop fiber. However, Fusein US Patent No. 6,335,814 teaches an optical transmitter further having a phase modulator (i.e., phase modulator 203 and 204, Fig. 2) for phase modulating light from the source (i.e., light source 201, Fig. 2) so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and a receiver (i.e., optical receiver 4, Fig. 2) having an interferometer (i.e., interferometer 6 having optical delay portion 602, Fig. 2) for reading received optical signals (col. 18, lines 50-67 and col. 19, lines 1-31). Although Fuse does not specifically teach a securing device for securing the delay loop fiber to the card. However, it would have been obvious to obtain a securing device in order to secure the

delay loop fiber. Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and the receiver having an interferometer for reading received optical signals as taught by Fuse in the system of Duncan. One of ordinary skill in the art would have been motivated to do this since Fuse suggests in column 18, lines 50-67, col. 19, lines 1-31 that using such the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and the receiver having an interferometer for reading received optical signals have advantage of allowing providing time division multiplexing, channel routing and channel add/ replace functions and providing a flexible way of allocating bandwidth among multiple users.

Regarding claims 2 and 20, the combination of Duncan and Fuse further teaches discloses the light is a laser (Fig. 2 of Fuse).

Regarding claim 7, the combination of Duncan and Fuse teaches the interferometer includes a splitter and a coupler (Fig. 2 of Fuse).

Regarding claim 8, the combination of Duncan and Fuse teaches the card includes backplane made from a printed circuit board (Fig. 1 of Duncan).

Regarding claims 9, 17, 23 and 24, referring to Figures 1 and 3, a card for transmitting data over at least one optical fiber, the card comprising:

a transmitter having at least one light source (i.e., light source 34, Fig. 1);

a receiver (i.e., light receiver 32, Fig. 1); and

a faceplate (i.e., faceplate 46, Fig. 1) having a fiber tap signal device for indicating a fiber tap (col. 2, lines 22-26 and col. 7, lines 12-23).

Duncan differs from claims 9, 17, 23 and 24 in that he fails to teach the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and the receiver having an interferometer for reading received optical signals. However, Fuse in US Patent No. 6,335,814 teaches an optical transmitter further having a phase modulator (i.e., phase modulator 203 and 204, Fig. 2) for phase modulating light from the source (i.e., light source 201, Fig. 2) so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and a receiver (i.e., optical receiver 4, Fig. 2) having an interferometer (i.e., interferometer 6, Fig. 1) for reading received optical signals (col. 18, lines 50-67 and col. 19, lines 1-31). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of an input electronic data stream, and the receiver having an interferometer for reading received optical signals as taught by Fuse in the system of Duncan. One of ordinary skill in the art would have been motivated to do this since Fuse suggests in column 18, lines 50-67, col. 19, lines 1-31 that using such the transmitter further having a phase modulator for phase modulating light from the source so as to create phase-modulated optical signals in the light as a function of

an input electronic data stream, and the receiver having an interferometer for reading received optical signals have advantage of allowing providing time division multiplexing, channel routing and channel add/ replace functions and providing a flexible way of allocating bandwidth among multiple users.

Regarding claim 10, the combination of Duncan and Fuse teaches the card is a replacement part for an existing optical multiplexer (Fig. 2 of Duncan).

Regarding claim 22, the combination of Duncan and Fuse further teaches the interferometer includes a delay loop fiber (Fig. 2 of Fuse).

18. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duncan et al (US Patent No. 6,459,517) in view of Fuse et al (US Patent No. 6,335,814) and further in view of Ono et al (US Patent No. 6,097,525).

Regarding claim 6, Duncan as modified by Fuse teaches all the aspects of the claimed invention set forth in the rejection to claim 1 above except fails to teach a circuit having a delayed feedback exclusive-or gate. However, Ono in US Patent No. 6,097,525 teaches a circuit having a delayed feedback exclusive-or gate (col. 1, lines 65-67 and col. 2, lines 1-27). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the circuit having a delayed feedback exclusive-or gate as taught by Ono in the system of Duncan modified by Fuse. One of ordinary skill in the art would have been motivated to do this since Ono suggests in column col. 1, lines 65-67 and col. 2, lines 1-27 that using such a circuit having a

delayed feedback exclusive-or gate has advantage of allowing narrowing the modulated light spectrum of the system.

19. Claims 3 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duncan et al (US Patent No. 6,459,517) in view of Fuse et al (US Patent No. 6,335,814) and further in view of Siegel (US Patent No. 4,998,295).

Regarding claims 3 and 21, Duncan as modified by Fuse teaches all the aspects of the claimed invention set forth in the rejection to claims 1 and 17 above except fails to teach an energy level detector. However, Siegel teaches an energy level detector (16)(Fig. 1, col. 1, lines 45-67 and col. 2, lines 1-60). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the energy level detector as taught by Siegel in the system of Duncan modified by Fuse. One of ordinary skill in the art would have been motivated to do this since Siegel suggests in column col. 1, lines 45-67 and col. 2, lines 1-60 that using such an energy level detector has advantage of allowing detecting and monitoring the signal.

Allowable Subject Matter

20 Claims 15, 16 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

21. Applicant's arguments with respect to claims 1-3, 5-10 and 15-24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

HANH PHAN
PRIMARY EXAMINER